

REMARKS

Claims 1 and 3-32 are pending in the application, and are rejected. Claims 7, 14, 21 and 22 are herein canceled. Claims 1, 3-6, 8-13, 15-20, 23-24, 27, 30 and 32 are herein amended.

Applicant herein amends the present application to disclose an invention of an ozone gas detection indicator. Support for this amendment can be found in original claim 7, and in the specification (page 24, line 26) of the present application.

Further, Applicant deletes the term "thiazine dye" from Claim 1.

Applicant herein adds new claim 33, which discloses an invention of a hydrogen peroxide gas detection indicator. This invention is based on original claims 1 and 7, and on the specification (page 24, line 26) of the present application. Applicant specifically notes that a "methine dye" is the only dye recited in Claim 33.

Applicant herein amends claim 9 to disclose an invention of an indicator for detecting hydrogen peroxide plasma sterilization. This amendment is based on the recitation in Claim 21.

Further, Applicant adds a limitation to claim 9 that the ink composition comprises a cellulose resin as all or a portion of a resin binder. This amendment is based on the recitations in claims 13 and 14.

Applicant herein adds another limitation to claim 9 that the color changing layer has a plurality of cracks in the surface thereof. This amendment is based on the recitation in claim 22.

Applicant herein amends other claims for consistency in accordance with the above amendments.

Because claims 30 and 32 actually depend on Claim 27, Applicant accordingly corrected the claim number to which these claims refer.

Applicant submits that no new matter has been presented.

Claim Rejections - 35 U.S.C. §102

Claims 1, 3 and 6 are rejected under 35 U.S.C. §102(b) as anticipated by Houillebecq et al. (GB 2,168,082).

Claims 1, 3 and 7 are rejected under 35 U.S.C. §102(b) as being anticipated by Sumitani et al. (EP 1,312,918).

Applicant herein amends the claims to clarify the invention. Thereafter, Applicant respectfully submits that the rejections are overcome.

The limitations of claim 7 are incorporated into Claim 1. Applicant submits that the reason for rejection based on Houillebecq et al. (GB 2,168,082) is thereby overcome.

Applicant herein deletes the term "thiazine dye" from Claim 1. Applicant submits that the reason for rejection based on Sumitani et al. (EP 1,312,918) is thereby overcome. Claim 1 greatly differs from Sumitani in terms of not only the dye but also a detection gas. Accordingly, Sumitani et al. cannot be used as cited references for rejecting claim 1 as obvious.

Applicant submits that claim 1, and all claims dependent therefrom, are considered distinguished over the cited references.

Claim Rejections - 35 U.S.C. §103

Claims 1 and 3-8 are rejected under 35 U.S.C. §103(a) as being unpatentable over Sudou (JP 2002-303618) in view of Omatsu et al. (U.S. 2001/0054374).

Claim 6 is rejected under 35 U.S.C. §103(a) as being unpatentable over Sudou and Omatsu et al. as applied to claim 1 above, and further in view of Nagata et al. (U.S. 6,267,242).

Claims 9, 12-17 and 21-23 are rejected under 35 U.S.C. §103(a) as being unpatentable over Omatsu et al. in view of Antonoplos et al. (U.S. 2002/0051733).

Claims 10, 11 and 20 are rejected under 35 U.S.C. §103(a) as being unpatentable over Omatsu et al. and Antonoplos et al. as applied to claim 9 above, and further in view of Sudou et al.

Claims 18, 19 and 24-26 are rejected under 35 U.S.C. §103(a) as being unpatentable over Omatsu et al. and Antonoplos et al. as applied to claims 9 and 21 above, and further in view of Lippold et al. (U.S. 6,410,338).

Claims 27-32 are rejected under 35 U.S.C. §103(a) as being unpatentable over Omatsu et al. in view of Antonoplos et al. Nagata et al.

Applicant herein amends the claims to clarify the invention. Thereafter, Applicant respectfully submits that the rejections are overcome.

Claim 1 defines an ozone gas detection indicator. In contrast, the cited references Sudou (JP2002-303618) and Omatsu et al. (US2001/0054374) both relate to an indicator for plasma sterilization. Ozone gas is not used for plasma sterilization. Thus, claim 1 greatly differs from

Sudou et al. and Omatsu et al. in terms of the technical field. Accordingly, Sudou et al. and Omatsu et al. cannot be used as cited references for rejecting claim 1 as obvious.

Furthermore, although Omatsu et al. describes the use of a cationic surfactant, what is described is a desired effect that is obtained by the combination of a cationic surfactant and an anthraquinone dye. Applicant submits that a person skilled in the art cannot predict whether a desired effect can be produced when a cationic surfactant is used in combination with a dye other than anthraquinone. Accordingly, claim 1 is unobvious over Sudou et al. and Omatsu et al.

Claim 33 defines an invention of a hydrogen peroxide gas detection indicator. The use of "methine dye" as a dye is very advantageous in the detection of hydrogen peroxide gas, as is clear from the Declaration dated July 27, 2009.

The bottom row (Test Example 2) of Table 1 in the Declaration shows the properties of the ink composition for detecting an oxidizing gas in response to hydrogen peroxide gas. In Table 1, Comparative Experiments 1 to 5 illustrate embodiments that do not comprise a cationic surfactant (Nikkol CA-2150) as a sensitizer that increases detection sensitivity. Even when such a sensitizer is not used, a color change (red → no color) can be observed within 10 minutes when a methine dye is used (Comparative Experiment 1). In contrast, in Comparative Experiments 2 to 5, in which other dyes were used, either no color change occurred, or the color change took a long time.

As can be clearly seen from the results, the use of "methine dye" as a dye is very advantageous in the detection of hydrogen peroxide gas. Neither Sudou et al. nor Omatsu et al. suggest such a finding. Accordingly, Claim 33 is unobvious over Sudou and Omatsu.

According to the indicator for detecting hydrogen peroxide plasma sterilization of claim 9, all or a portion of the resin binder contained in the ink composition is a cellulose resin. Therefore, even when the color changing layer has a plurality of cracks in the surface thereof, satisfactory fixation is maintained without destroying the color changing layer (specification, page 36, lines 21-25). Further, it is clear from Table 3 in the specification of the present application that satisfactory fixation is obtained in the case of Examples 9-12 and 16-18 (a cellulose resin FQRS1/2 is contained).

Cracks in the color-changing layer are advantageous in regards to increasing the surface area. However, satisfactory fixation must be maintained without destroying the color changing layer in a harsh sterilization atmosphere.

Omatsu et al. merely provides a list of a great number of resins as resin binders, and nowhere discloses the above-described advantageous effect of a cellulose resin. Antonoplos et al. (US2002/0051733) also nowhere discloses the advantageous effect of a cellulose resin. The advantageous effect of a cellulose resin in the present invention is an effect that cannot be expected from Omatsu et al. and Antonoplos et al.

Accordingly, claim 9 (and claims dependent therefrom) is unobvious over Omatsu et al. and Antonoplos et al.

In view of the aforementioned amendments and accompanying remarks, Applicant submits that the claims, as herein amended, are in condition for allowance. Applicant requests such action at an early date.

Application No. 10/594,587
Attorney Docket No. 063140

Amendment under 37 C.F.R. §1.114
Amendment filed May 25, 2010

If the Examiner believes that this application is not now in condition for allowance, the Examiner is requested to contact the undersigned attorney to arrange for an interview to expedite the disposition of this case.

If this paper is not timely, Applicant petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,
WESTERMAN, HATTORI, DANIELS & ADRIAN, LLP

/Kenneth H. Salen/

Kenneth H. Salen
Attorney for Applicant
Registration No. 43,077
Telephone: (202) 822-1100
Facsimile: (202) 822-1111

KHS/nrp